

State/ Local / Tribal Agency Audited: California Air Resources Board

Address: 1001 I Street

City, State, and Zip Code: P.O. Box 2815, Sacramento, CA 95812

Date of Technical System Audit: June 7, 2011

Auditor / Agency: EPA Region 9  
Audit lead: Meredith Kurpius

## 1) General / Quality Management

### a) Program Organization

#### List Key Managers:

	Name	Agency Title
Agency Director	James	Executive Officer
Ambient Air Monitoring (AAM) Network Manager	Alberto Ayala	Division Chief
Quality Assurance Manager	Mike Miguel	
Field Operations Supervisor / Lead	Ken Stroud	
Laboratory Supervisor	Cindy	
QA Laboratory Manager	Placeholder	
Data Management Supervisor / Lead	Ken, Kathy, Sherrod, Samantha Scola (lab), Joe (manager), Norma (staff), Merrin (P&A)	

#### List Key Staff:

	Name	Division/Branch
Network Design and Siting	Gayle Sawyer	
QC Activities	Joe Guerrero, Fernando Amador, Jeff Wright (standards lab)	
QA Activities	Merrin Wright	

QA Auditors	(MK has list of auditors)	
Equipment Repair and Maintenance	Reggie Smith	
Site Operation	Ken's branch (*Kent to provide site specific list)	
Data and Data Management	Covere above	
Training	Laura Niles(Merrin's group), Matt Quok (Reggie's group)	
Financial Management	Kathy Chapin (fiscal branch chief)	Administrative Services Division
Equipment and Service Contract Management	Socorro Watkins	
Purchases > \$500	Socorro Watkins	
Grant Management	Kathy Chapin	

List your district offices and associated staff below (State Agencies Only)		
Name	Address (City)	Staff
MLD	Sacramento	Alberto?
So Cal Lab site	El Monte, CA	Fernando Amador
Nor Cal Site		

Comment on the need for additional personnel, if applicable

Alberto answers yes generally. Depending on outcome of audit and if any expanding needs come out, then ARB will explore avenues to obtain necessary resources. ARB will work internally and will also be very happy have EPA support.

**Attach an Organizational Chart :**

- Are there vacancies? If so, what is the status?

-Field Data Acquisition Systems Administrator (Ken's group)

-Operations Planning & Assessment (Mike Miguel)

-Another vacancy in Organics laboratory (Cindy)

-Internal hiring freeze, can only hire from within the agency. Talking about establishing a mechanism to try and retain potential retirees for a longer time. Many retiring staff in the field.

**Contractors and Suppliers**

Questions	Yes	No	Comments
Does your agency utilize any contractors in your air monitoring program? If no, skip to the next table.	X		Repair, certifications. Not field activities. Calibrations of sonic anemometers.
Who is responsible for oversight of contract personnel?	Reggie Smith		
What steps are taken to ensure contract personnel meet training and experience criteria?			
Does the contractor follow an EPA approved QAPP?			
- Where/how is this documented?	Statement of work, Maintenance agreements. Purchase specs.		
How often are contracts reviewed and/or renewed?			

**b) Facilities**

Identify the principal facilities where the agency conducts work that is related to air monitoring. Do not include monitoring stations but do include facilities where work is performed by contractors or other organizations.		
Facility AAM Function	Location	Is Space Adequate?
General office space	MLD	Yes
Data verification and processing	MLD & El Monte	
Criteria gas instrument maintenance and storage	MLD	
Certification of standards e.g. gases, flow transfers, MFC	MLD	
Instrument repair	MLD	
PM filter weighing	MLD	
Long-term storage	5 <sup>th</sup> & Broadway, mile away from MLD. Warehouse.	
Short-term storage	MLD	
Air toxics (Carbonyls, VOC s, Metals):	MLD	
Indicate any facilities that should be upgraded. Identify by function and any suggested improvements or recommendations. IN process of having several hoods updated.		
Are facilities adequate concerning safety? Yes / No Please explain if answer is no any suggested improvements or recommendations. Recent safety inspection at MLD that are being addressed. ARB recently hired a health/safety personnel.		
Are monitoring sites ever used for storage of equipment, spare parts, or supplies? Minimal amounts (i.e. filters)		

Are there any significant changes which are likely to be implemented to agency facilities within the next one to two years? Comment on agency's needs for additional physical space (laboratory, office, storage, etc.).

Facility	Function	Proposed Change - Date
N/A		

## c) Independent Quality Assurance and Quality Control

### 1. Status of Quality Assurance Program

Question	Yes	No	Comment
Has the agency documented and implemented specific audit procedures separate from monitoring procedures?	<b>X</b>		
Are there two levels of management separation between QA (e.g., auditors) and QC (e.g., site operators) operations? Please explain:	<b>X</b>		
Does the agency have identifiable auditing equipment and standards (specifically intended for sole use) for audits?	<b>X</b>		

### 2. QC Checks

Select which of the following QC you conduct at your gaseous sites				
Precision Checks	Typically Performed?	How?		Frequency
		Manually (by whom?)	Automated	
Precision Point	<b>Y</b>		<b>X</b>	<b>5/week</b>
Zero Precision Span	<b>Y</b>		<b>X</b>	<b>2/week</b>
Zero Precision			<b>X</b>	<b>daily</b>
Probe Line Integrity Checks		<b>X</b>		<b>Every 6 months</b>
Other: ____instrument checks____	<b>X</b>	<b>X?</b>		<b>monthly</b>

### 3. Internal Performance Audits

Question	Yes	No	Comment
Does the agency have separate facilities to support audits and calibrations?	<b>X</b>		
If the agency has in place contracts or similar agreements either with another agency or contractor to perform audits or calibrations, please name the organization and briefly describe the type of agreement.			
Does the agency have a performance audit SOP?	<b>X</b>		
Does the agency maintain independence of	<b>X</b>		

audit standards and personnel?			
Do any site operators ever audit their own sites?		X	
Does the agency have a certified source of zero air for performance audits?	X		
How do you generate your zero air? <b>API 701 verified against Scott Marrin 0 cylinder. Certified every audit.</b>			
Does the agency have procedures for auditing and/or validating performance of Meteorological monitoring?	X		<b>WS, WD, &amp; temp only</b>
Is audit equipment ever used to support routine calibration and QC checks required for monitoring network operations?		X	
If yes, please describe.			
Are standard operating procedures (SOPs) for air monitoring available to all field personnel?	X		
Has the agency established and has it documented criteria to define agency-acceptable audit results?	X		

Please complete the table below with the pollutant, monitor and acceptance criteria			
Pollutant	Action Level	Corrective Action (if exceeded)	How is performance tracked?
O <sub>3</sub>	7 & 10%		Quarterly AMP255 review, looking at P&A. Monthly AQS data completeness checks of districts. Control charts.
CO	10/15		
NO <sub>2</sub>	10/15		
SO <sub>2</sub>	10/15		
PM <sub>10</sub>	7/10		
PM <sub>2.5</sub>	4/5		
Pb	7/10		
Continuous PM <sub>2.5</sub>	4/5		
Continuous PM <sub>10</sub>	7/10		
Trace Levels (CO)		No current audit program for trace levels	
Trace Levels (SO <sub>2</sub> )			
Trace Levels (NO)			
Trace Levels (NOy)			

Surface Meteorology			
Others			
At what point do you invalidate data? <b>Anything over 15% is deleted, recently lowered from 25%.</b>			

Question	Yes	No	Comment
Were these audit criteria based on, or derived from, the guidance found in Volume II of the QA Handbook for Air Pollution Measurement System, Section 2.0.12?	<b>X</b>		If no, please explain.  If yes, please explain any changes or assumptions made in the derivation. <b>At minimum meet EPA requirements and in some instances, more stringent</b>
<p>What corrective action may be taken if criteria are exceeded? If possible, indicate two examples of corrective actions, taken within the period since the previous systems audit which are based directly on the criteria discussed above.</p> <p>Corrective Action # 1</p> <p><b>Imperial, EL Centro site NOx box was out in January 2011. Went back recently and this was corrected.</b></p> <p>Corrective Action #2</p> <p><b>Sensor at a site was out in San Joaquin, starting threshold wasn't meeting spinning criteria, turns out they had to replace.</b></p>			

Question	Yes	No	Comments
Are your sites regularly reviewed for Appendix E siting criteria?	<b>X</b>		Frequency: <b>Annually</b>
Do you conduct internal system and/or data audits of your air monitoring agency?	<b>X</b>	<b>X</b>	<b>Occasional system but no data review. Did being to do TSAs. Modeled after EPA TSAs.</b>
(1) How frequently?			
(2) Describe audits			
(3) Who receives the results of these audits?	<b>Audited agency</b>		
(4) Do you report these results to EPA?	<b>X</b>		

Question	Yes	No	Comments
Are internal annual performance audits for gaseous criteria pollutants conducted?			Frequency: <b>Uncertainty here</b>
Who conducts these audits?			
Are internal semi-annual flow audits for both PM <sub>2.5</sub> and PM <sub>10</sub> & TSP conducted?	<b>X</b>		Frequency: <b>semi annual</b> Time between audits: <b>5-7 months apart</b>
Who conducts these audits?			

### 3. External Performance Audits

Question	Yes	No	Comments
Does your agency participate in NPAP, PM <sub>2.5</sub> PEP, Pb PEP and other performance audits performed by an external party and/or using external standards?	<b>X</b>		<b>ARB in charge of NPAP, EPA heading PEP</b>
If the agency does not participate, please explain why:			
Who performs the NPAP and PEP audits?	NPAP <b>ARB</b> PM <sub>2.5</sub> PEP <b>EPA</b> Pb PEP <b>EPA</b>		
Is your agency audited by the State (if you are a local agency)?			
(1) How frequently?			
(2) What type of audit is conducted (e.g., performance or systems audit)?			
(3) Who receives the results of these audits?			
(4) Do you report these results to EPA?			



**d) Planning Documents including QMP, QAPP, &SOP**

<b>QMP Questions</b>	<b>Yes</b>	<b>No</b>	<b>Comments</b>
Has the QMP been approved by EPA within the last five years?			Date of Original Approval: Date of Last Revision: Date of Last Approval:
<b>QAPP Questions</b>	<b>Yes</b>	<b>No</b>	<b>Comments</b>
Has the QAPP been reviewed by EPA recently?			Date of Original Approval: Date of Last Revision: Date of Last Approval:
Does the State review your QAPP prior to EPA review? (local agencies only)			
Does your agency have any revisions to your QAPP pending?			
How does the agency verify the QAPP is fully implemented?	Precision, Accuracy, & completeness are major indicators. Are SOPs being looked at and updated. AQDA process. No formal evaluation, but elements that go in. Mini list of questions that go into every performance audit. QAPP available to staff online		
How is the QAPP available to the staff (e.g., electronically, hard copies at site, etc.)	Online		
<b>SOP Questions</b>	<b>Yes</b>	<b>No</b>	<b>Comments</b>
How does the agency verify that the SOPs are implemented as provided (e.g., staff are regularly observed for correct implementation of SOPs)?			
How are revisions to the SOP distributed?	Electronically		
How are SOPs available to the staff (e.g., electronically, hard copies at site, etc.)	Available online. PQAO list serve that provides these updates		
Are any new monitoring SOPs needed? If yes, please list in comments section.	X		Data validation, API 200 NOx, working with vendors on minor ones. Switching from analog to digital. Defer to EPA SOP for NCore, eventually would like to develop. Lead.

**e) General Document Policies**

<b>Question</b>	<b>Yes</b>	<b>No</b>	<b>Comment</b>
Does the agency have a documented records management plan?	X		For paper records only, not for electronic
Does the agency have a list of files considered official records and their media type (i.e., paper, electronic)?	X		Both hard and electronic
Does the agency have a schedule for retention and disposition of records?	X		For paper
Are records for at least three years?	X		
Who is responsible for the storage and retrieval of records?	Reggie's group keeps some in lab, Ken mentions they're a bit sketchy here. Mike Miguel		

	mentions an archival.
What security measures are utilized to protect records?	Some are, some are not. Merrin says TSAs are.
Where/when does the agency rely on electronic files as primary records?	LIMS data.
What is the system for the storage, retrieval and backup of these files?	LIMS is backed up weekly, moving to daily soon.

## f) Training

Question	Yes	No	Comment
Does the agency have a training program and training plan?	X		Plan available, not fully implemented. Some Ad Hoc. More formal in Merrin's group. Specific process outlined for first year. Reggie mentions no formal document training, but does have folks in his group look out for certain trainings. He recommends trainings to his staff. Monthly lab webinars set up by Kathy.
Where is it documented?			Merrin's group has a training spreadsheet and documents her groups activities.
Does it make use of seminars, courses, EPA sponsored college level courses?	X		All over. Some internal, some through EPA. Some contracted services.
Are personnel cross-trained for other ambient air monitoring duties?	X		Some. Merrin's group does. Lab also conducts.
Are training funds specifically designated in the annual budget?	X		
Does the training plan include:	Yes	No	Comment
1. Training requirements by position	X		Some, not all.
2. Frequency of training		X	
3. Training for contract personnel		X	
4. A list of core QA related courses	X		Merrin's group does.

Indicate below the three most recent training events and identify the personnel participating in them.

Event	Dates	Participant(s)

**g) Corrective Action**

Question	Yes	No	Comments
Does the agency have a comprehensive corrective action program in place?	X		
Have the procedures been documented?	X		Being enhanced
1. As a part of the QA project plan?			
2. As a separate standard operating procedure?			
Does the agency have established and documented corrective action limits for QA and QC activities?			
<b>Are procedures implemented for corrective actions based on results of the following which fall outside of established limits:</b>			
1. Performance Evaluations	X		
2. Precision Goals		X	Inform districts
3. Bias Goals		X	Inform districts
4. NPAP Audits			Same as 1?
5. PEP Audits		X	Not getting results
6. Validation of one point QC Check Goals	X		Someone sent out to check. This is documented.
7. Completeness Goals	X		Follow-up with districts. More of an informal process.
8. Data Audits			
9. Calibrations and Zero Span Checks			
10. Technical Systems Audit	X		Issue findings report. Require a CAP within 45 days.
Have the procedures been documented?			
How is responsibility for implementing corrective actions assigned? Briefly discuss.			
How does the agency follow up on implemented corrective actions? Formal- staff member dedicated to following up on AQDA. Go out and do re-audits. Some problems with siting. Auditors need to look back at previous year's AQDAs and note that. ARB give 45 days to respond. If no response, ARB acts. Informal- Back and forth follow up for example in completeness report.			

Briefly describe recent examples of the ways in which the above corrective action system was employed to remove problems.

## h) Quality Improvement

Question	Yes	No	Comment
Have all deficiencies indicated on the previous TSA been corrected?	x		<p>In- house data system called Carblogger. Shows diagnostics, generates email to site operator and mgr if outside specs. Implemented at about 12 sites. Limited by needing dsl or internet service, but otherwise seems to work well.</p> <p>Have added staff, section is bigger than has been. Allows for better efficiencies. Implemented db to track site leases. Replacing all ozone analyzers since last TSA.</p> <p>New QA instruments.</p> <p>Method developments underway, especially for toxics. (ORD had been asking for information.)</p> <p>ACMIS real-time data system helpful for identifying questionable data.</p>
If not explain.			
What actions were taken to improve the quality system since the last TSA?			
Since the last TSA do your performance indicators show that the overall data quality for each pollutant steady or improving?			PM2.5 FRMs are 4 years older than used to be. Buying a few more FRMs, but data quality tends to be decreasing.
Are there areas where data quality appears to be declining? If so not possible causes in comment section.			
Are there pending plans for quality improvement such as purchase of new or improved equipment, standards, or instruments?			